

NONSTRUCTURAL HAZARD REHABILITATION GUIDELINES (NHRG) 2003 UPDATE INSTRUCTIONS

Contained on NHRG_Update_03.pdf are the updated pages for the NHRG Manuals. These pages can be printed and inserted in the NHRG. The page numbers on the bottom right of each sheet indicate the location or Section where these new pages go. Just replace the existing page with the new page. In addition to the pages that are being replaced, there are some additional pages that should be deleted. Below is a table listing all the pages that have been modified.

Products or Details to be Removed	Products or Details to be Added
	V1-S6-P1
	V1-S11-P3
V2-S18-P1	V2-S18-P1
	V2-S18-P7
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If you have any questions or would like to see additional changes for the 2004 update, please contact Tim Brown @ 330-445-3709

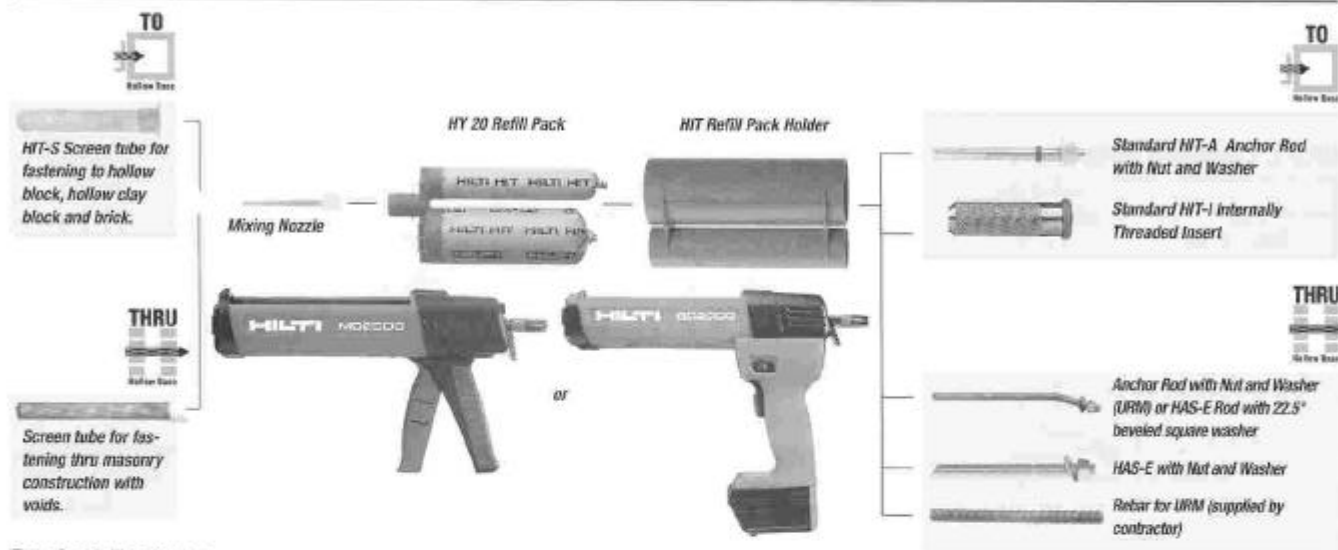
4.2.3

HIT HY 20 for Masonry Construction

4.2.3.1 Product Description

The Hilti HIT HY 20 System is based on a hybrid adhesive. The system consists of a dual cylinder adhesive refill pack, a mixing nozzle, a screen tube, a HIT dispenser with refill pack holder, and either a threaded rod, rebar or HIT internally threaded insert. HIT HY 20 is specifically designed for fastening into material containing voids and holes such as hollow block, lightweight hollow block, brick with holes, multi-wythe brick walls and clay tile.

Fastener Components



Product Features

- Accurate dispensing of resin and hardener into the wire mesh screen tube
- Mixing tube ensures proper mixing and eliminates measuring errors
- Environmentally friendly, contains no styrene; virtually odorless
- For use in hollow or multi-wythe base materials
- Excellent weathering resistance
- Enhanced load values in a variety of base materials

Guide Specifications

Master format section: (Masonry accessories)
Related Sections: 03250 (Concrete Accessories)
 05050 (Metal Fabrication)
 05120 (Structural Steel)

Adhesive anchors shall consist of a threaded anchor rod, nut, and washer; a cylindrical mesh screen tube, and an injectable adhesive material.

Injection adhesive shall be packaged in side by side refill packs which keep separate component A and component B. Side by side packs shall be designed to compress during use to minimize waste volume. Side by side packs shall also be designed to accept static mixing nozzle which thoroughly blends component A and component B and allows injection directly into a mesh screen tube. Alternately, product may be furnished in large rigid cartridges for high volume work. Only injection tools and static mixing nozzles as recommended by the manufacturer shall be used. Manufacturer's instructions shall be followed.

Injection adhesive shall be formulated to include resin, hardener, cement and water to provide optimal curing speed as well as high strength and stiffness. Typical curing time at 68°F shall be 60 minutes.

Listings/Approvals

- International Conference of Building Officials (ICBO-ES): Evaluation Report No. 4815
- City of Los Angeles (COLA): Research Report No. 24564
- Southern Building Code Congress International (SBCCI) Report No. 9930

Injection adhesive shall be HIT HY 20, as manufactured by Hilti, Inc., Tulsa, OK.

Anchor Rods—Furnish with chamfered ends so that either end will accept a nut and washer. Manufactured to meet the following requirements:
 1. ASTM A36 (standard carbon steel anchor) 2. ISO 898 Class 5.8 3. AISI 304 or AISI 316 stainless steel, meeting the requirements of ASTM F-593 (condition CW).

Special order length HAS or HIT Rods may vary from standard product, but meet or exceed the minimum fu mechanical properties of HAS rods.

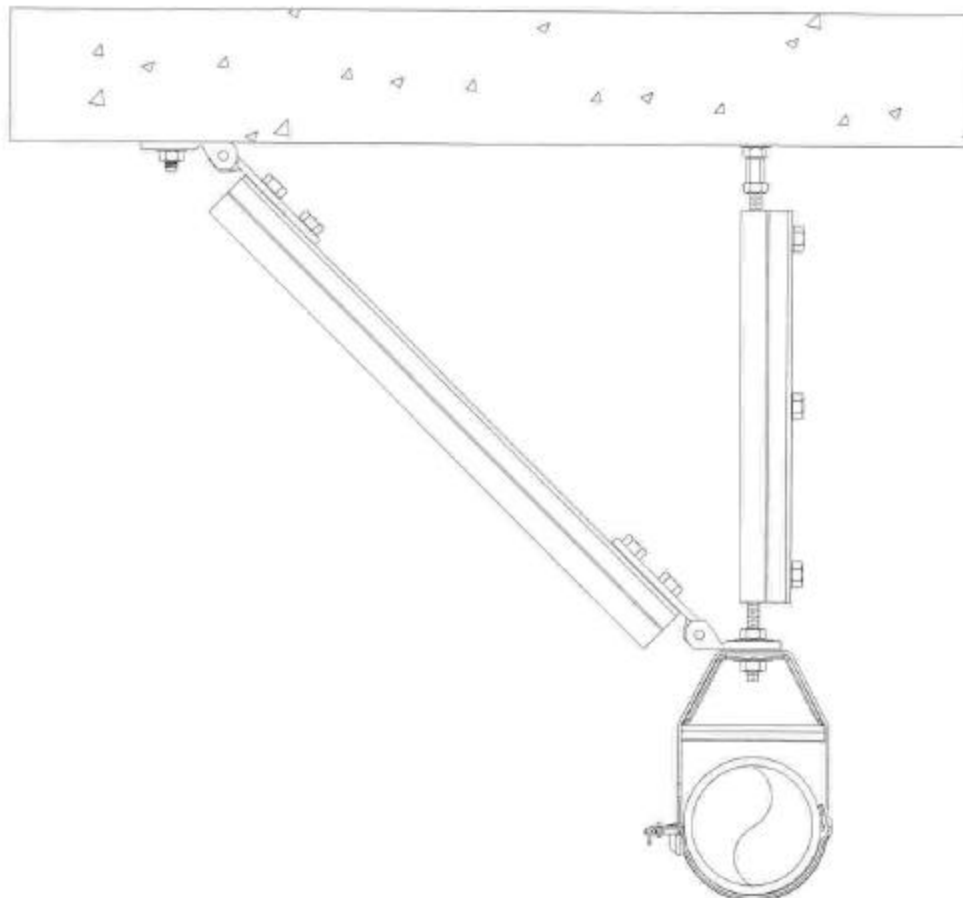
Furnish Nuts and Washers to meet the requirements of the above anchor rod specifications.

Mesh Screen Tube—Shall be formed into a cylindrical shape, with one end closed to prevent extrusion of adhesive through that end. Screen tube shall be manufactured with a mesh size, length and diameter as specified by the adhesive manufacturer. Mesh shall be manufactured from: 1. Low carbon steel with zinc electro-plating or 2. AISI 304 stainless steel or 3. plastic.

Anchor rods and screens shall be the Hilti HIT system as manufactured by Hilti, Inc., Tulsa, OK.

SEISMIC RESTRAINT SYSTEMS MANUAL

FOR BRACING OF PIPES AND CONDUIT



HILTI[®]
expertise. in every case.

First Edition 2001

Approved by the California Office of Statewide
Health Planning and Development (OSHPD)

H437 00099386

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A P P R O V E D Fixed Equipment Anchorage Office of Statewide Health Planning and Development		 5400 S. 122nd East Ave. Tulsa, Oklahoma 74146 Phone: 1-800-879-8000 Fax: 1-800-879-7000 www.us.hilti.com	
R- 0479	April 16, 2001	***** Valid for 3 Years Maximum *****	
 Bill Staehlin (916) 654-3362	 Raymond S. Pugliese Structural Engineer California SE No. 3968	Page i	



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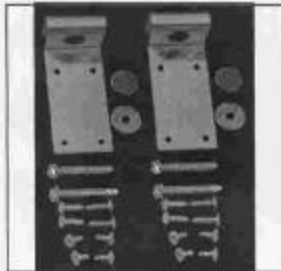
SeismaFlex™ Brackets

SF 224S, SF 226S, SF 226SA

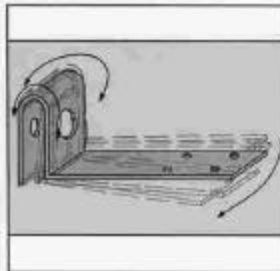


PRODUCT FEATURES

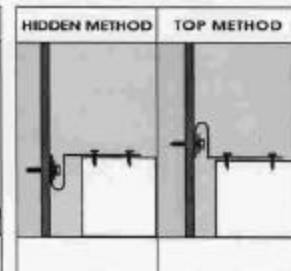
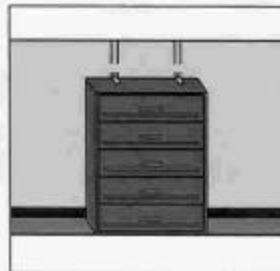
- Helps compensate for poorly constructed office and partition walls
- Brackets flex to absorb energy, reducing stress at fastening points
- Standard (2) bracket kit is for top fastening of items located directly against a wall
- Shape of bracket allows item to sit away from wall to accommodate wall molding, electrical, etc.
- Also available with 3M® VHB™ adhesive tape (for fastening to metal furniture without drilling holes)



SF 224S



Brackets handle movement in any direction without prying or pulling on the mounting hardware.



Mounting methods side view.

These stainless steel brackets are designed with a "U" bend that springs and flexes with resistance to absorb displaced seismic energy, reducing stress at the fastening connections. A rigid "L" bracket will immediately transfer the force to the connecting hardware, often snapping the heads off the screws or prying them out. Webbing straps and chains work to deflect energy but do not provide any resistance.

SeismaFlex™ brackets can handle stress from any direction and have a better designed hole pattern which allows the bracket to fasten to a wall stud with a single large lag. The furniture side attaches with multiple screws or adhesive.

This semi-rigid form of seismic anchoring is the most effective form of earthquake fastening for extra large and heavy furniture such as armoires, entertainment centers, file cabinets, bookcases, etc.

SPECIFICATIONS

- Dimensions:** All brackets have a 1.5" raised "U" bend
 SF224S 2" x 4" for items 1/2" from wall
 SF226S 2" x 6" for items 4" from wall
 SF226SA 2" x 6" for items 4" from wall
 *SF226SA has 3M® VHB™ adhesive tape
- Materials:** Made from 16 gauge stainless steel with a bright finish
- Kit includes:** (2) brackets, pinhead tek screws, pinhead wood screws, lag screws for wood studs, tek screws for metal studs, cover-up caps.

*Hiilti® Toggler™ are available for attachment to drywall.

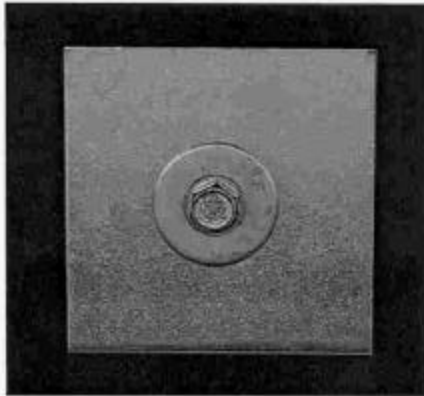
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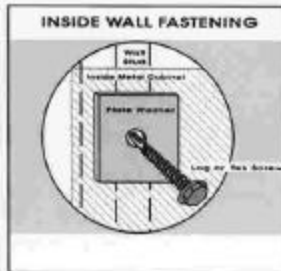
Internal Plate Washers

**IW 225FK, IW 225WK, IW 225WL,
IW 425FK, IW 233FA**



PRODUCT FEATURES

- *Better aesthetics: hidden fastening from inside the item to a wall or floor*
- *Can be used to secure two-piece cabinets or sectional furniture together*
- *For items that are placed flush against the wall*
- *"2-point", "3-point", and "4-point" wall or floor fastening kits available*



Internal Plate Washers provide an aesthetically pleasing method to secure furniture to the wall or floor. When bolting furniture to the studs in a wall or to the floor our internal plate washers enhance the fastener's holding strength. The plates spread the load over a wide area on thin sheet metal backs of file and storage cabinets and protect wood furniture by preventing splintering or the possibility of the furniture pulling through the lag bolt during an earthquake.

Wall: Graded metal Tek screws perform best into metal stud walls and wood screws are furnished for wood stud attachment (metal Tek screws are preferred when fastening into plywood). Large top-heavy cabinets may require a 2-point fastening at the uppermost point of the inside of the cabinet, and an additional set at or near the expected center of mass. Most standard cabinets require 2-point fastening at or near the top only.

Floor: Hilti® Kwik-Con™ intrude less into concrete and carpet and are easily removed.

SPECIFICATIONS

Dimensions: 2.5" x 2.5" x 3/16" steel zinc plated washers with 5/16" center hole

Wall Kit - 2" Lag screw & 2" Tek screw

Floor Kit - Hilti® Kwik-Con™ or concrete anchor

*Powder coat enamel finish available

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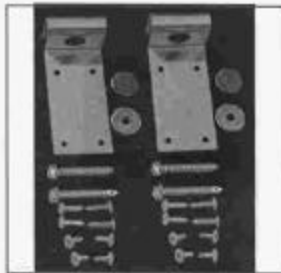
SeismaFlex™ Brackets

SF 224S, SF 226S, SF 226SA

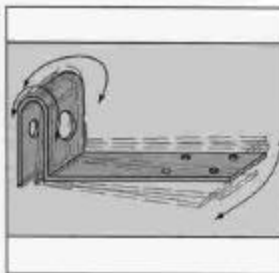


PRODUCT FEATURES

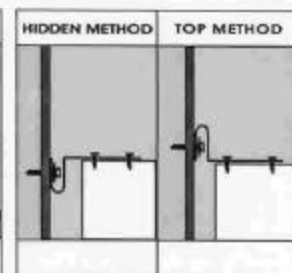
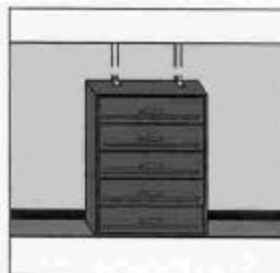
- Helps compensate for poorly constructed office and partition walls
- Brackets flex to absorb energy, reducing stress at fastening points
- Standard (2) bracket kit is for top fastening of items located directly against a wall
- Shape of bracket allows item to sit away from wall to accommodate wall molding, electrical, etc.
- Also available with 3M® VHB™ adhesive tape (for fastening to metal furniture without drilling holes)



SF 224S



Brackets handle movement in any direction without prying or pulling on the mounting hardware.



Mounting methods side view.

These stainless steel brackets are designed with a "U" bend that springs and flexes with resistance to absorb displaced seismic energy, reducing stress at the fastening connections. A rigid "L" bracket will immediately transfer the force to the connecting hardware, often snapping the heads off the screws or prying them out. Webbing straps and chains work to deflect energy but do not provide any resistance.

SeismaFlex™ brackets can handle stress from any direction and have a better designed hole pattern which allows the bracket to fasten to a wall stud with a single large lag. The furniture side attaches with multiple screws or adhesive.

This semi-rigid form of seismic anchoring is the most effective form of earthquake fastening for extra large and heavy furniture such as armoires, entertainment centers, file cabinets, bookcases, etc.

SPECIFICATIONS

Dimensions:	All brackets have a 1.5" raised "U" bend SF224S 2" x 4" for items 1/2" from wall SF226S 2" x 6" for items 4" from wall SF226SA 2" x 6" for items 4" from wall <i>*SF226SA has 3M® VHB™ adhesive tape</i>
Materials:	Made from 16 gauge stainless steel with a bright finish
Kit includes:	(2) brackets, pinhead tek screws, pinhead wood screws, lag screws for wood studs, tek screws for metal studs, cover-up caps.

**Hilti® Toggler™ are available for attachment to drywall.*

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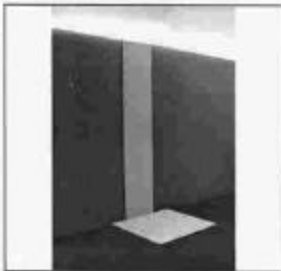
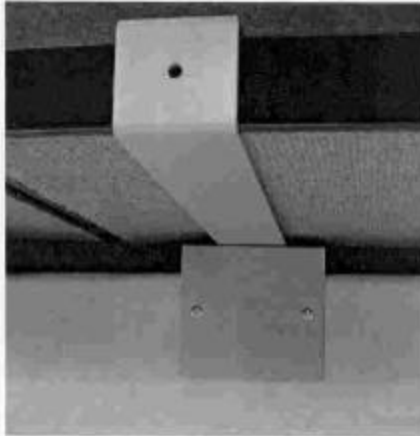
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Furniture Brackets for Partition Walls

**PB 21.68, PB 21.75,
PB 22.00, PB 22.25**

PRODUCT FEATURES

- Secures items to partition walls without drilling or anchoring to wall or floor
- Item is secured with a special semi-rigid brace that hooks over the partition wall
- Adhesive mounted fastening bracket attaches to top of item
- Single or double bracket configurations for individual or back-to-back cabinets
- Available in black, dark gray, light gray or custom powder coated to match color schemes



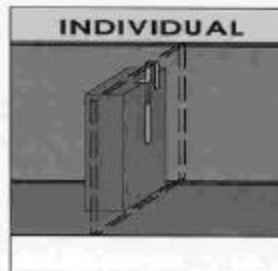
The Inside Dimension of bracket is equal to the Outside Dimension of the partition wall.



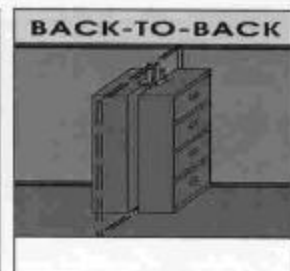
Easy to install and re-configure.

This partition bracket system is designed to allow easy securing of file and storage cabinets in open-plan partitioned office areas. Each individual file cabinet is secured to the partition wall structure with a special semi-rigid brace that hooks over the partition wall. An adhesively mounted fastening bracket with a rear sleeve is attached to the cabinet. To move an item, simply remove the partition strap out of the rear sleeve and re-attach at its new location. These brackets are available in double bracket configurations for back to back cabinets.

Adhesive system provides 1200 lbs. of shear strength. The optional tek screws help ensure the effectiveness of the adhesive bond.



INDIVIDUAL



BACK-TO-BACK

SPECIFICATIONS

Top Sleeve Bracket: 4.25" x 4" w/6" sleeve
16 gauge steel
Powder coated with enamel
12 sq. in. of 3M® Adhesive on underside

Partition Strap: 2" x 8" x 25"
Inside Dimension (I.D.) varies
Model # PB21.68 = 1.68" I.D.
Model # PB21.75 = 1.75" I.D.
Model # PB22.00 = 2.00" I.D.
Model # PB22.25 = 2.25" I.D.
10 gauge steel
Powder coated with enamel

Kits include special adhesive-backed top sleeve bracket(s), steel partition strap, alcohol cleaning pads, pan head tek screws

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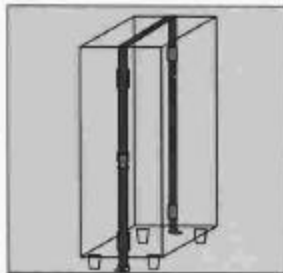
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Ratchet Overstrap

NTS 2149B, NTS 2149S, NTS 2149W
NTS 2249B, NTS 2249S, NTS 2249W
NTS 2409B, NTS 2409S, NTS 2409W

PRODUCT FEATURES

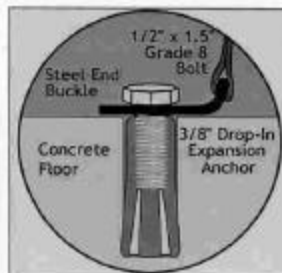
- Ideal for large refrigerators, ice machines, vending machines, etc.
- Secures unit to floor without drilling into body
- Adjustable nylon straps
- Heavy-duty steel ratchet tightly cinches strap to unit
- Available in black, silver or white



Ratchet Strap with optional strap guides.



Quick & Easy Fastening.



Floor Anchor.



Steel Ratchet.

Fastening of thermally insulated items such as refrigerators, vending machines, and even flammable liquids storage cabinets should be done without screwing into the body of the item. These types of items may contain freon tubes or exposed wiring which could be dangerous. The thermal insulation barrier will also be compromised causing improper performance of the appliance.

Our Ratchet Straps do not require screwing into the unit; the straps use cinching pressure to secure the item. There is no need to constantly re-tighten the item since the straps are made of high-quality nylon seat belt webbing that does not stretch. A specially designed end bracket pulls at a 45 degree angle away from the anchor to ensure maximum effectiveness when anchoring to a concrete floor.

SPECIFICATIONS

Strap:	non-stretch nylon webbing NTS 2149 = 2" x 14 ft. NTS 2249 = 2" x 24 ft. NTS 2409 = 2" x 40 ft. Also available in 1" width
Ratchet:	Steel
Brackets:	Steel 45° angle, 1/2" center hole
Colors:	B = Black S = Silver W = White

Kits include bolts and Hilti® Drop-in concrete anchors

Strap guides sold separately - NTSG 224 (black or silver 2 pcs.)
 NTSG 424 (black or silver 4 pcs.)

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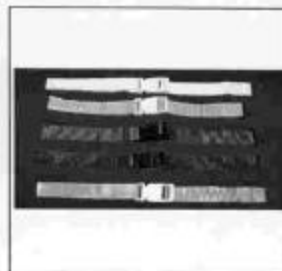
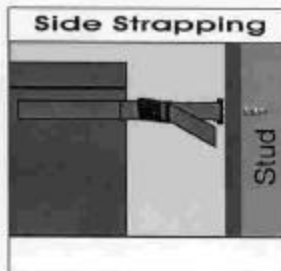
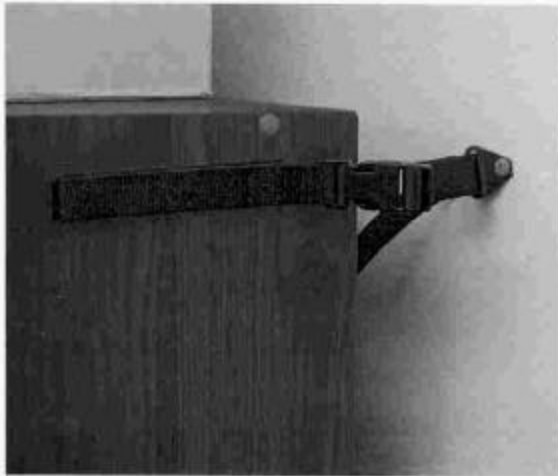
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Furniture/Appliance Strap Kit w/Velcro®

FSV 2112B, FSV 2112MB, FSV 2112S,
FSV 2112T, FSV 2112W

PRODUCT FEATURES

- Ideal for small furnishings / appliances
- Adjustable nylon straps w/side-release buckles
- Quake strength Velcro® fasteners
- Can secure items placed 1" to 12" from wall
- Allows easy securing and quick access to items for cleaning, servicing, etc.
- Available in black, medium brown, silver, tan, or white
- Kits include all hardware



Available in 5 colors

Secure fastening with
Quake Strength Velcro®

These multi-purpose straps are great for prefabricated / self-assembled furniture up to 250 lbs. They can also be used for countertop items, microwave ovens, small TV's, aquariums, and many other items.

Installation is simple since there is no need to drill into item to be secured; just peel and stick the Velcro® end to the item and pull the strap end tight. Each strap has 6 square inches of quake-strength Velcro® brand hook & loop/peel & stick tape.

The buckle can be adjusted to fasten items that sit 3" to 6" from the wall. The other end of the strap features a steel bracket that mounts to a wall stud with lag screws.

SPECIFICATIONS

Straps:	1" x 12" Commercial grade nylon Quake-strength Velcro® hook & loop/peel & stick Each pair holds items up to 250 lbs.
Buckles:	Side-release (squeeze-action) Made of molded Acetal Resin
End Bracket:	Painted steel
Colors:	B = Black MB = Medium Brown S = Silver T = Tan W = White

Kit comes with lag screws and alcohol cleaning pads

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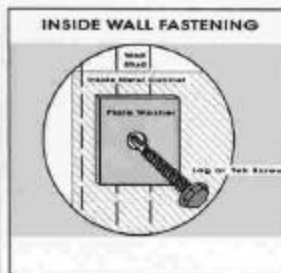
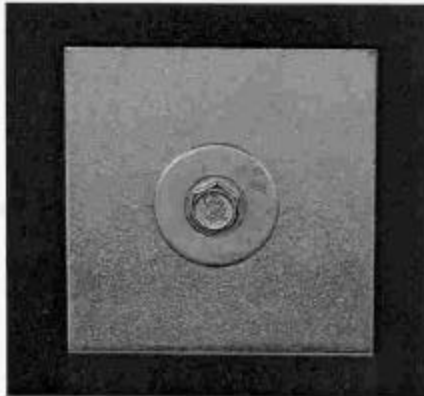
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Internal Plate Washers

**IW 225FK, IW 225WK, IW 225WL,
IW 425FK, IW 233FA**

PRODUCT FEATURES

- *Better aesthetics: hidden fastening from inside the item to a wall or floor*
- *Can be used to secure two-piece cabinets or sectional furniture together*
- *For items that are placed flush against the wall*
- *"2-point", "3-point", and "4-point" wall or floor fastening kits available*



Internal Plate Washers provide an aesthetically pleasing method to secure furniture to the wall or floor. When bolting furniture to the studs in a wall or to the floor our internal plate washers enhance the fastener's holding strength. The plates spread the load over a wide area on thin sheet metal backs of file and storage cabinets and protect wood furniture by preventing splintering or the possibility of the furniture pulling through the lag bolt during an earthquake.

Wall: Graded metal Tek screws perform best into metal stud walls and wood screws are furnished for wood stud attachment (metal Tek screws are preferred when fastening into plywood). Large top-heavy cabinets may require a 2-point fastening at the uppermost point of the inside of the cabinet, and an additional set at or near the expected center of mass. Most standard cabinets require 2-point fastening at or near the top only.

Floor: Hilti® Kwik-Con™ intrude less into concrete and carpet and are easily removed.

SPECIFICATIONS

Dimensions: 2.5" x 2.5" x 3/16" steel zinc plated washers with 5/16" center hole

Wall Kit - 2" Lag screw & 2" Tek screw

Floor Kit - Hilti® Kwik-Con™ or concrete anchor

*Powder coat enamel finish available

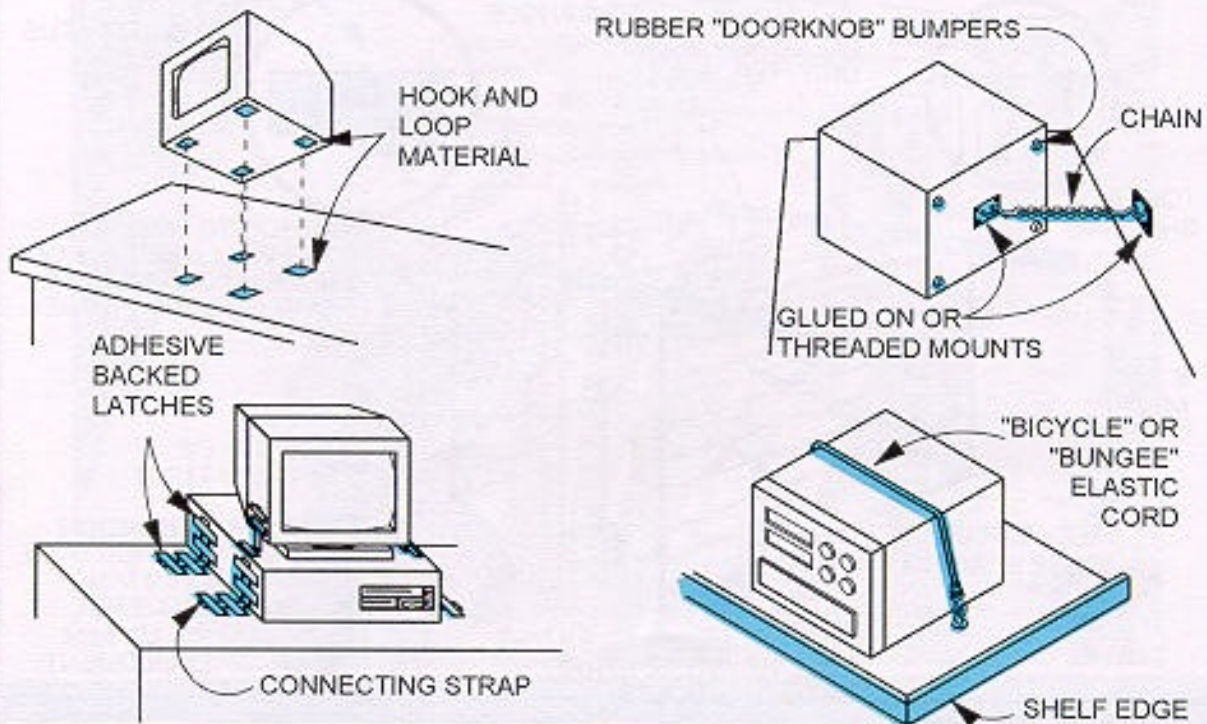
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DESKTOP COMPUTERS AND OFFICE EQUIPMENT

DO-IT-YOURSELF



Unsecured computers may fall and suffer damage
Photo Credit: Wiss, Janney, Elstner Associates, Inc.

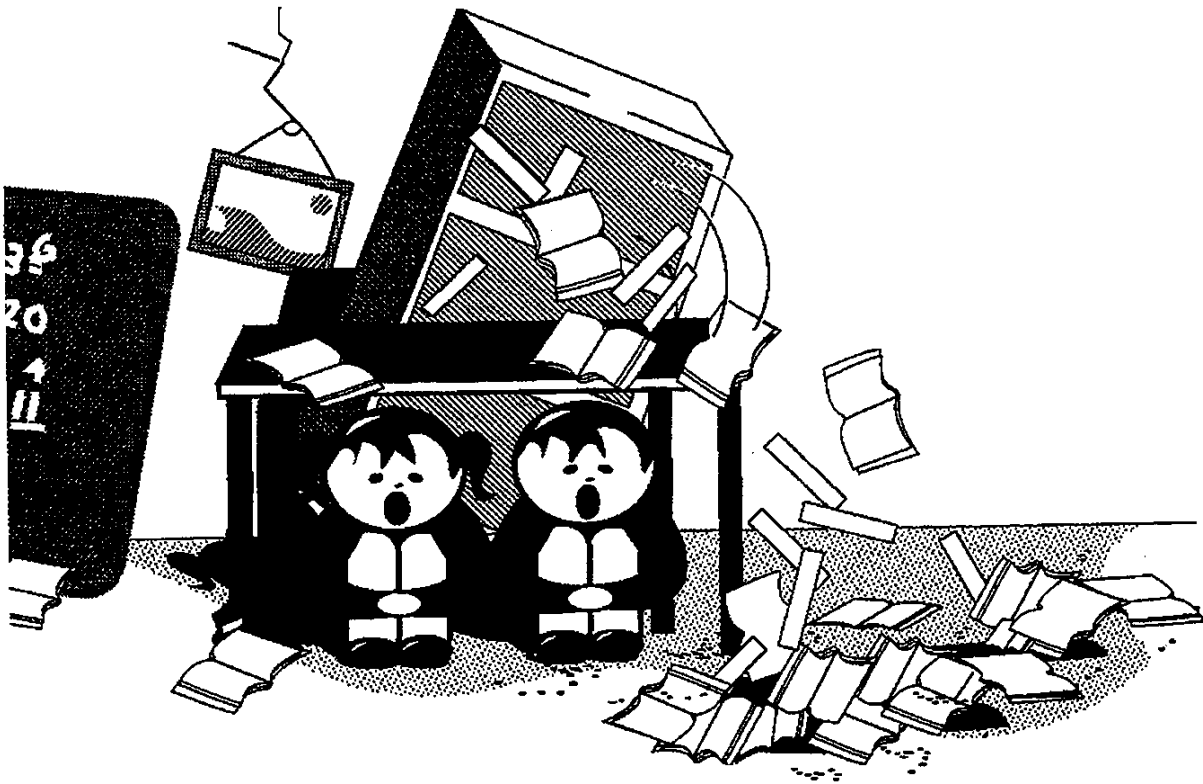


Upgrade Detail C10
Approximate Cost: \$50 per computer

C10

Identification and Reduction of

Nonstructural Earthquake Hazards in Schools



July 1993



**IDENTIFICATION AND REDUCTION
OF
NONSTRUCTURAL EARTHQUAKE
HAZARDS**

developed by

Bay Area Regional Earthquake Preparedness Project

and

Office of the State Architect

Structural Safety Section

The publication of this document was supported by funding through a cooperative agreement between the Federal Emergency Management Agency and the California Office of Emergency Services. The recommendations included in this document are intended to improve hazard mitigation. The contents do not necessarily reflect the views and policies of the Federal Emergency Management Agency, the Governor's Office of Emergency Services, or the Office of the State Architect. The contents do not guarantee the safety of any individual, structure, or facility in an earthquake. Neither the United States nor the State of California assumes liability for any injury, &at/t, or property damage that occurs in connection with an earthquake.

NONSTRUCTURAL EARTHQUAKE HAZARDS

INTRODUCTION

This publication is intended to help identify nonstructural hazards at the school site and to show how those hazards can be reduced. Nonstructural hazards can occur in every part of a building and all of its contents with the exception of the structure. In other words, nonstructural elements are everything *but* the columns, beams, floors, load-bearing walls, and foundations. Common nonstructural items include ceilings, lights, windows, office equipment, computers, files, air conditioners, electrical equipment, furnishings, and anything stored on shelves or hung on walls. In an earthquake, nonstructural elements may become unhooked, dislodged, thrown about, and tipped over; this can cause injury and loss of life, extensive damage, and interruption of operations.

Ever since the Field Act of 1933, public school buildings in California have been constructed to stringent seismic design codes; however, attention was not given to nonstructural hazards until relatively recently. Title 24 of the California Code of Regulations now prescribes some nonstructural seismic safety elements for new construction in public schools, but many nonstructural hazards are still not covered. Both public and private schools can make use of this publication to determine the extent of nonstructural hazards in their facilities.

The checklist on pages 2 through 4 contains the nonstructural hazards known to be dangerous or problematic in earthquakes. School administrators and engineers may carry the checklist with them as they survey a school site. After the survey is complete, any checked NO boxes represent hazards in need of correction.

In parentheses after each hazard listed there is either a brief solution or a numbered reference. The numbers refer to solutions on pages 5 through 18 that illustrate how to restrain or anchor nonstructural elements and thereby reduce their hazardousness. The illustrations contain the specifications necessary in order to correct the particular nonstructural hazard.

For some items the fix is fairly complicated, and (A/E) indicates that an architect or engineer should be consulted. (LS) after an item draws attention to the fact that it is a life safety hazard and should be a high priority for correction. Items in italics are generally already taken care of if they were part of recent state-approved construction in public schools.

This publication was developed jointly by staff at the Bay Area Regional Earthquake Preparedness Project (BAREPP), and the Structural Safety Section of the Office of the State Architect. An earlier BAREPP publication by Robert Reitherman, *Reducing the Risks of Nonstructural Earthquake Damage: A Practical Guide*, was adapted to address specifically those nonstructural hazards most common in California schools.

Any questions about the use of this document should be directed to Dennis Bellet, Code/Research Engineer, at the Office of the State Architect in Sacramento, (916) 445-8730.

CHECKLIST

Use this checklist to complete a nonstructural hazards survey at a school site. Once the survey is completed, any checks in the NO boxes indicate items that are in need of correction.

YES/NO

EQUIPMENT AND FURNISHINGS

- ☐ ☐ Are desktop computers secured? (solution EF1a or b)
- ☐ ☐ Are the tops of tall (4-or 5-drawer) file cabinets secured to the wall? (solution EF2) (LS)
- ☐ ☐ Do file cabinet drawers have latches? (provide latches)
- ☐ ☐ Are large and heavy office machines restrained and located where they will not slide a few inches, fall off counters or block exits? (solution EF3a or b)
- ☐ ☐ Are wall-mounted objects over 5 lbs. connected to structural framing? (solution EF4)
- ☐ ☐ Are tall cabinets, bookshelves, coat closets attached to the wall or attached to each other? (solution EF5) (LS)
- ☐ ☒ Are desks or tables located such that they will not slide and block exits? (move them)
- ☐ ☐ Are tall storage racks cross-braced in both directions or, for racks significantly taller than wide, are there large anchor bolts connected to the concrete slab? (solution EF6) (LS)
- ☐ ☐ Are heavy or sharp wall decorations securely mounted, with closed eye-hooks, for example? (solution EF4)

YES/NO

- ☐ ☐ Are valuable, fragile art objects or trophies protected against tipping over, breaking glass or sliding off shelves or pedestals? (solution EF7)
- ☐ ☐ Are refrigerators or ranges restrained by built-in kitchen cabinetry or attachments to floor or wall? (solution EF2) (LS)
- ☐ ☐ Is floor-supported freestanding shop equipment secured against overturning or sliding? (solution EF8) (LS)
- ☐ ☐ Are fire extinguishers securely mounted? (solution EF9)
- ☐ ☐ Are potted plants or heavy items on top of file cabinets or other high locations restrained? (solution EF10)
- ☐ ☐ Are display cases or aquariums protected against overturning or sliding off tables? (solution EF1)
- ☐ ☐ Are weight room equipment and racks anchored and weights properly stored? (provide secured racks)
- ☐ ☐ Is freestanding equipment on wheels locked against rolling? (lock wheels)

HAZARDOUS MATERIALS

- ☐ ☐ Are compressed gas cylinders secured top and bottom with a safety chain? (solution HM1)
- ☐ ☐ Are laboratory chemicals on shelves restrained? (solution HM2) (LS)

(A/E) indicates an architect or engineer should be consulted. (US) indicates a life safety hazard.

Items in italics are generally already taken care of in public schools if they were part of recent, state-approved construction.

YES/NO

- ☐ ☐ Are gas tank legs anchored to a concrete footing or slab? (solution HM3) (A/E)
- ☐ ☐ Are containers of hazardous materials stored on braced storage racks or tall stacks? (provide secured storage) (LS)
- ☐ ☐ Do gas pipes have flexible connections? (provide flexible connections) (A/E)

OVERHEAD ELEMENTS

- ☐ ☐ Does the suspended ceiling have diagonal bracing wires? (solution OE1) (A/E) (LS)
- ☐ ☐ Are the fluorescent light fixtures merely resting on the hung ceiling grid, without another support? (solution EE1) (ME)
- ☐ ☐ Do pendant mounted light fixtures or chandeliers have safety cables? (solution OE4) (LS)
- ☐ ☐ Will hanging light fixtures swing freely, not hitting each other if allowed to swing 45 degrees minimum? (fix or remove fixtures) (LS)
- ☐ ☐ Are decorative ceiling panels or latticework securely attached? (solution OE1)
- ☐ ☐ Will spotlights remain securely attached if shaken? (secure them)
- ☐ ☐ Are sound system speakers in elevated locations anchored to structure? (secure speakers)
- ☐ ☐ Are suspended space heaters, especially gasfired, braced and/or have flexible gas connections? (solution OE2) (A/E)

YES/NO

- ☐ ☐ Do hanging plants, mobiles, or displays have closed eye-hooks, and can they swing freely 45 degrees? (secure objects in safe locations, see solution EF4)
- ☐ ☐ Could chandeliers swing freely, not hitting each other, or windows, roof trusses, or walls? (immobilize or move chandeliers)
- ☐ ☐ Are air distribution grills or diffusers securely mounted? (provide anchorage)
- ☐ ☐ Do large metal air distribution ducts, especially those suspended a few feet, have diagonal bracing? (solution OE3) (A/E)
- ☐ ☐ Have heavy objects been removed from the tops of shelves? For 5 & 6 year olds, overhead objects are only 3 feet off the floor. (remove the objects) (LS)

ELECTRICAL EQUIPMENT

- ☐ ☐ Are fluorescent light bulbs and lenses fastened securely? (solution EE1)
- ☐ ☐ Are emergency battery-powered lights fastened securely on shelves? (secure batteries)
- ☐ ☐ Is essential communications equipment secured? (secure it)

MECHANICAL EQUIPMENT

- ☐ ☐ Are the water heaters restrained? (solution ME1)
- ☐ ☐ Is the furnace or boiler restrained? (solution EF8) (A/E)
- ☐ ☐ Are there masonry incinerator chimneys on the school site that have not been reinforced? (remove them) (A/E) (LS)

(A/E) indicates an architect or engineer should be consulted (L/S) indicates a life safety hazard.

Items in italics are generally already taken care of in public schools if they were part of recent, state-approved construction.

Use this checklist to complete a nonstructural hazards survey at a school site. Once the survey is completed, any check in the NO boxes indicate items that are in need of correction.

YES/NO

- ☐ ☐ Are large diameter pipes braced or do pipes that cross expansion joints have accommodation for movement? (solution ME2) (A/E)
- ☐ ☐ Are fans, chillers, pumps, or other heating -ventilating-air conditioning equipment--typically found in mechanical rooms--restrained or mounted correctly? (solution ME3a or b) (A/E)
- ☐ ☐ Do the fire sprinkler risers have a v-brace to the wall, and do the large diameter sprinkler pipes have diagonal braces to the structure above? (solution ME2) (A/E)

PARTITIONS

- ☐ ☐ Are freestanding, movable, partial-height partitions--especially if supporting bookshelves--adequately braced? (solution PA1)
- ☐ ☐ Have all unreinforced masonry partitions, usually brick or hollow tile walls in pre-1933 buildings, been removed? (remove them) (LS)
- ☐ ☐ Are light-weight drywall partitions that extend as high as tie hung ceiling braced or supported by the structure above, particularly if these partitions are used as lateral support for tall shelving or cabinets? (solution PA3) (A/E)
- ☐ ☐ Are the clear panels in partitions made of plastic or safety glass? (replace with shatter-proof material or apply shatter-resistant film)

YES/NO

WINDOWS

- ☐ ☐ Are the large panes made of safety glass, and is it known if the mounting of the panes was designed by an architect/engineer to accommodate expected seismic distortion of the surrounding structure? (apply shatter-resistant film)
- ☐ ☐ Are transoms (glass panes over doors) of safety glass? (apply shatter-resistant film)

EXTERIORS

- ☐ ☐ Are decorations or appendages adequately attached? (solution E 1) (A/E)
- ☐ ☐ Are statuary or decorative objects anchored? (solution EI) (A/E)
- ☐ ☐ Are tall backboards or fences supported by pressure-treated wood posts or galvanized metal posts? (provide anchorage to ground)
- ☐ ☐ Are fences made of concrete, concrete block, stone or brick, adequately reinforced to resist earthquakes? (reinforce or remove) (A/E)
- ☐ ☐ If large trees are leaning or in poor health are they supported? (support or remove trees)
- ☐ ☐ Is signage adequately secured, especially if heavy? (solution EI)

(A/E) indicates an architect or engineer should be consulted. (US) indicates a life safety hazard.

Items in italics are generally already taken care of in public schools if they were part of recent, state-approved construction.



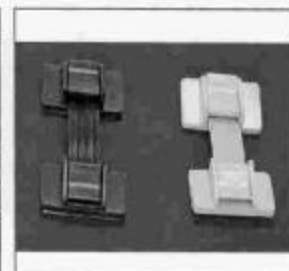
www.worksafetech.com

SeismaLoks™

SL4B, SL8B, SL20B, SL200B,
SL4P, SL8P, SL20P, SL200P

PRODUCT FEATURES

- Attaches to the sides of item and to desktop surface
- Offers a multitude of fastening options
- Strapping material can be cut to desired length
- Strapping allows "stretch & give" reducing stress on adhesive to maximize effectiveness
- Available in SeismaLok bulk packaging for large installations



Available in Black or Putty

SeismaLoks™ are the highest quality and easiest to use strap and buckle adhesive-based fastening system available.

Our exclusive PVC and polyurethane strapping material is designed to reduce stress on the adhesive which maximizes its overall holding strength.

We've made SeismaLoks easy to install with a one-size buckle that fits most items. The cut-to-length strapping makes installation a breeze.

This popular system provides an extremely versatile and universal method to secure all types of electronic items such as VCR's, stereo equipment, speakers, CPU's, etc., with "2-point", "4-point", or stackable fastening.

QuakeMat™ Circles can be added for protection against sliding motion.

SPECIFICATIONS

Strap: Stretchable strapping material is a proprietary blend of PVC and polyurethane

Buckle: Made of molded high strength ABS plastic with 3M® VHB adhesive backing

Dimensions:

Buckles: 1" x 2"

Strapping: 1" wide Roll (length depends on kit purchased)

Adhesive pad: 1" x 1-7/8"

Colors: B = Black P = Putty

Available in bulk and with QuakeMat™ Circles

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www.worksafetech.com

Monitor Lasso™

ML 1148B, ML 1148P

MLC1 1148B, MLC2 1148B, MLC3 1148B

MLC1 1148P, MLC2 1148P, MLC3 1148P

PRODUCT FEATURES

- Ideal for use in partitioned workstations, or where monitor cannot go backwards
- "Adhesive-free" attachment to monitor
- "Quick-release" buckle for instant access
- Strap adjusts to prevent forward motion while you duck and cover
- Attach to desk with swivel "T" clip, or
- Attach to desk edge with friction "C" clip



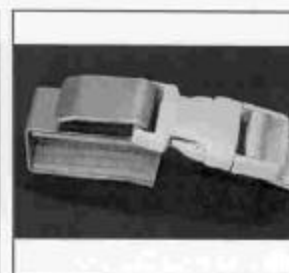
Wraps around neck of monitor



Adjust strap length at buckle



Use with adhesive Swivel "T" Clip



Optional "C" Clip w/o adhesive

The Monitor Lasso™ is another unique product developed for use in partitioned workstations or on desks where the monitor cannot fall backwards. The lasso simply wraps around the neck of the monitor, without adhesive, and can be re-used if monitor is changed or replaced.

A quick-release buckle allows easy access if the monitor needs to be moved. The strap adjusts at the buckle to the proper length to prevent the monitor from falling forward as you duck cover and hold.

Available in two distinct styles: with an adhesive swivel "T" mount to back of desk, or with a friction desk edge clip.

The Monitor Lasso is available in Putty to blend with most office equipment, and in Black for IBM and others.

SPECIFICATIONS

Lasso: 1" x 48" adjustable length
Nylon webbing

Buckle: Side-release (squeeze-action)
Made of molded Acetal Resin

"T" Clip: 1.25" x 3" painted steel plate with swivel-action
3M® VHB High-strength acrylic adhesive

"C" Clip: Stainless spring steel - friction grip
Specify desk thickness - C1 = 1"
C2 = 1.25"
C3 = 1.5"

Colors: B = Black P = Putty

Available with QuakeMat™ Circles

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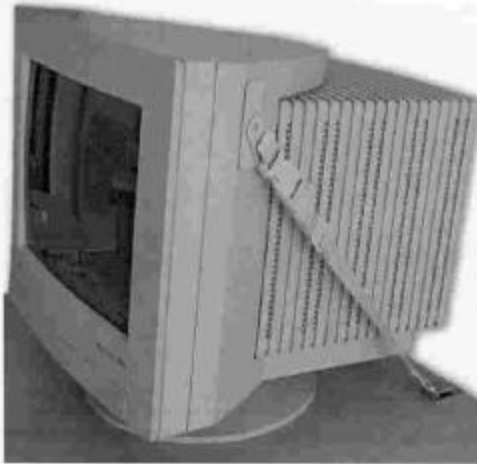
www.worksafetech.com

Monitor SwivelStraps™

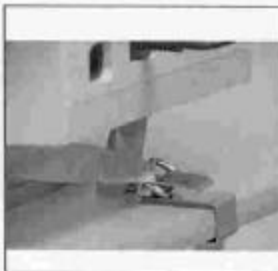
**MS 2124B, MS 2124P,
MSC1 2124B, MSC2 2124B, MSC3 2124B,
MSC1 2124P, MSC2 2124P, MSC3 2124P,
MS2C1 2124B, MS2C2 2124B, MS2C3 2124B,
MS2C1 2124P, MS2C2 2124P, MS2C3 2124P**

PRODUCT FEATURES

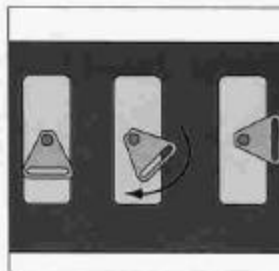
- Designed to secure large desktop monitors to the surface
- Swivel action allows easy monitor adjustment
- "Quick-release" buckle for instant access
- Straps self-adjust to proper angle, maximizing adhesive strength
- Attach to desk with swivel "T" clip, or
- Attach to desk edge with friction "C" clip



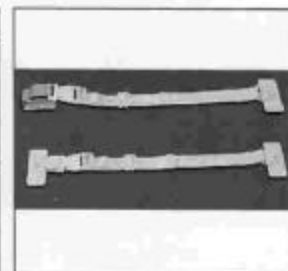
MS2C1 2124P



MSC1 2124P



Swivel action allows easy monitor adjustment



Attaches with Swivel "T" Clip or "C" Clip

Monitor Swivel-Straps™ are designed to secure large monitors (17" and up) to the desktop surface.

The swivel plate can be adhered in any convenient location on both the monitor and desktop. The strap will then swivel to conform to the best directional pull. Since the pull is from the center of the plate, the adhesive holding power is maximized.

The straps can be detached at the quick-release buckle for easy access.

Available in two distinct styles: with adhesive swivel "T" mounts to back of desk, or with friction desk edge clips.

Monitor Swivel-Straps™ are available in Putty to blend with most office equipment, and in Black for IBM and others.

SPECIFICATIONS

- Strap:** 1" x 24" adjustable length nylon webbing
- Buckle:** Side-release (squeeze-action)
Made of molded Acetal Resin
- "T" Clip:** 1.25" x 3" painted steel plate with swivel-action
3M® VHB High-strength acrylic adhesive
- "C" Clip:** Stainless spring steel - friction grip
Specify desk thickness - C1 = 1"
C2 = 1.25"
C3 = 1.5"
- Colors:** B = Black P = Putty
- Available in kits with 1 "C" clip (MSC) or 2 "C" clips (MS2C)
Available with QuakeMat™ Circles

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QuakeMats™

QM 0216, QM 0414, QM0416,
QM 0418, QM 0422, QM 0709,
QM 1012, QM 2416, QMB 03C

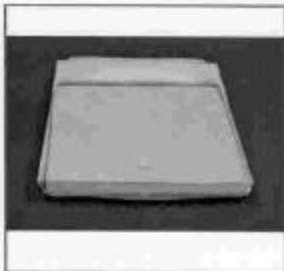


PRODUCT FEATURES

- Quick and easy securing of items with a low center of gravity
- No adhesive mess
- Creates a high friction seal between equipment and desktop
- Ideal for items that are moved often
- Convenient pre-cut sizes to fit most machines
- Long-term effectiveness
- Available in Gray or Putty
- Easy to clean



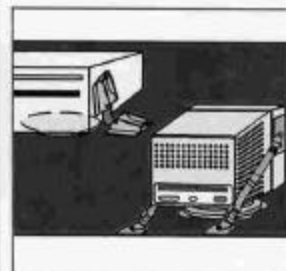
QuakeMat™ Circles
under a Monitor



QM 1012G
under a scanner



QM 0414G
under a VCR



Combine QuakeMats™
w/other fastening kits
for a stronger grip

QuakeMats™ are the most innovative and popular method of providing earthquake fastening without drilling into or applying adhesives to the desktop or item. These high friction foam mats made of a high-density polymer that creates open "micro-cells" that grip both the surface top and the item's base like suction cups. Simply place QuakeMats under the item and it is instantly secured from seismic motion.

The soft foam material works both as a high-friction/non-slip surface, and as a base isolator; helping the item resist the first moment of inertia that causes items to launch or topple.

This form of fastening computer and office equipment is ideal since items can be easily moved or relocated whenever you want.

Also, QuakeMats soft foam will not damage desktop surfaces.

SPECIFICATIONS

QuakeMats™ are 5/16" thick and made of a proprietary formula containing PVC.

They come in different sizes and shapes, depending on model number.

A polyester fabric inside the QuakeMats™ prevents tearing.

Colors: G = Gray P = Putty

Available in bulk packs of 10 or 20 Kit equivalent and custom sizes.

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www.worksafetech.com

LabTrac™ Bottle Strap

LTBS 122B

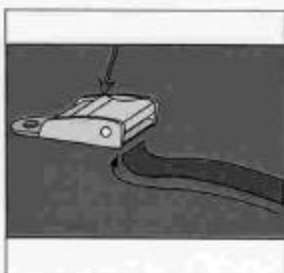


PRODUCT FEATURES

- *Designed to restrain standard bottles of hazardous chemicals with pour handles commonly found on lab workbench counters*
- *Secures bottle to the wall, the back of cabinets, or underneath shelves*
- *Easy to install swivel mount cam buckle keeps bottle in place*
- *Cam buckle allows quick strap adjustment*
- *Can be used with a wide variety of glass and plastic bottles*



Clip-On Method
for glass bottles



Auto-Locking
cam lever



Wrap-Around Method
for plastic bottles



Hook holds a variety
of neck handles

Primary concerns during an earthquake are the safety of your equipment and the safety of your employees. When securing multi-million dollar laboratory equipment, one may overlook low-tech hazards such as chemical storage bottles.

Lab Trac™ Bottle Straps keeps dangerous chemicals such as acids or other hazardous materials secured in place on the countertop. Our special design keeps bottles from rolling over to avoid potentially catastrophic lab accidents.

Protecting your equipment may be priority number one, but don't forget to protect yourself.

SPECIFICATIONS

- Strap:** 1" x 18" Adjustable commercial grade nylon webbing
- Hook:** Steel snap hook with keeper bar
- Buckle:** Large steel swivel mount locking cam buckle
- Colors:** Black

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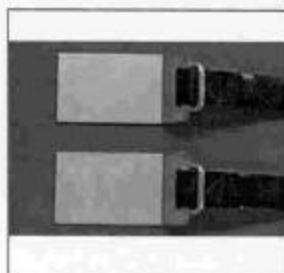
LabTrac™ Countertop Equipment Straps

TS 2118BSS, TS 4118BSS

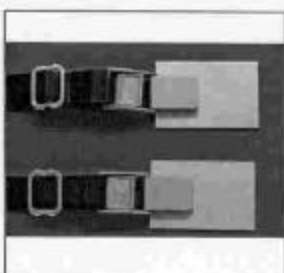
TS 2118PSS, TS 4118PSS

PRODUCT FEATURES

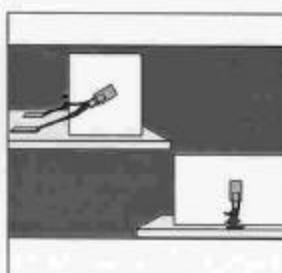
- Secures extra-large countertop lab instruments in Pharmaceutical, Biotech, and Clean Room environments
- Ideal for securing equipment that vibrates or shakes
- Adjustable length and multiple strapping methods
- Bio-Coated TekStraps™ are non-corrosive, easy to clean, and will not host bacteria or fungus
- Strapping available in black and putty



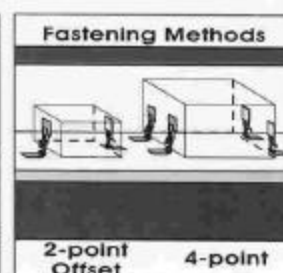
End plate attaches to countertop or wall



Steel Cam Buckle allows easy adjustment



Versatile and flexible mounting methods



Fastening Methods

2-point
Offset

4-point

These straps offer an extremely high strength form of fastening, ideal for securing items that vibrate or shake.

TekStraps are made of a special non-corrosive and non-porous coated material that does not absorb liquids and prevents the growth of fungus and bacteria.

Bio-coated TekStraps act as an isolator between the adhesive connecting plates minimizing any motion transfer between the item and the surface it sits on. This alleviates any stress on the adhesive pads, allowing them to maintain a proper bond to the surface.

These are one of our strongest non-rigid detachable straps that offer an adjustable length and multiple fastening methods.

SPECIFICATIONS

Straps: 1" x 18" Adjustable length TekStrap™ w/urethane coating

Clips: 2" x 3" Stainless steel mounting clips w/3M®VHB™ adhesive backing

Plates: 2" x 3-3/4" Stainless steel end plates w/3M®VHB™ adhesive backing

Buckle: 1" x 1-1/2" Steel cam buckle

Colors: B = Black P = Putty

"2-point" fastening system: TS 2118BSS
TS 2118PSS

"4-point" fastening system: TS 4118BSS
TS 4118PSS

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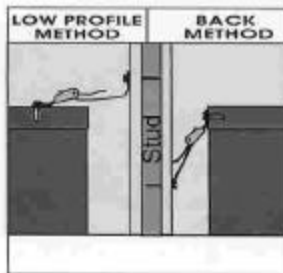
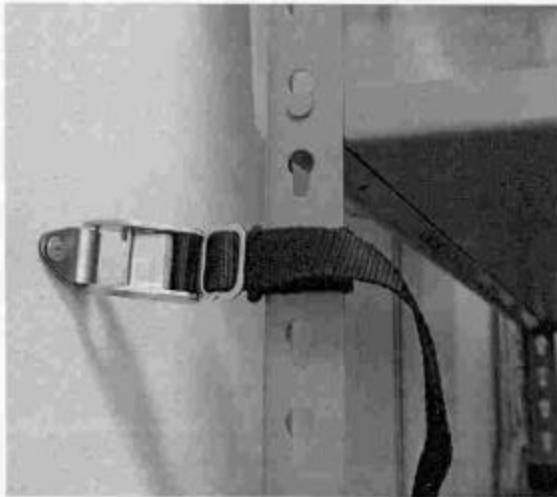
www.worksafetech.com

Adjustable/Detachable Furniture Straps

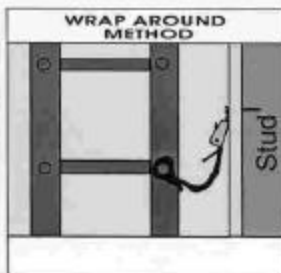
**FS 2118B, FS 2118MB, FS 2118S,
FS 2118T, FS 2118W**

PRODUCT FEATURES

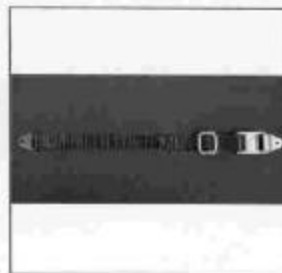
- Heavy-Duty multipurpose straps for large furniture
- Adjustable nylon straps
- Swivel cam locking buckles
- Can secure furniture placed 1" to 14" from wall
- Available in black, medium brown, silver tan, or white
- Kits include all hardware



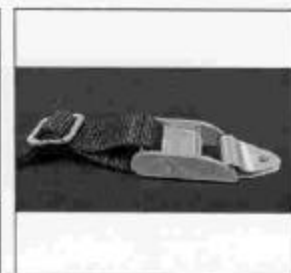
BACK METHOD



WRAP AROUND METHOD



FS 2118B



Swivel mounting cam buckle

Adjustable/detachable furniture straps are constructed of high strength nylon webbing with a steel end buckle sewn onto one end and a special swivel mounting cam buckle on the other end. The cam buckle automatically locks the strap in place after it is pulled to size. The straps are easily connected and disconnected when moving furniture to access wires or electrical outlets. In most cases these straps can be installed out of view for better aesthetics.

These straps are especially useful when securing odd shaped furniture, cabinets with thin veneered tops (by attaching to the furniture's back brace), and furniture placed away from walls or in corners where other brackets can't reach. Straps can also be wrapped around open back shelf units or baker's racks.

SPECIFICATIONS

Straps:	1" x 18" Commercial grade nylon Each pair holds items up to 500 lbs.
Buckle:	Large steel swivel mounting cam buckle
End Bracket:	Painted steel
Colors:	B = Black MB = Medium Brown S = Silver T = Tan W = White

Kit comes with lag screws

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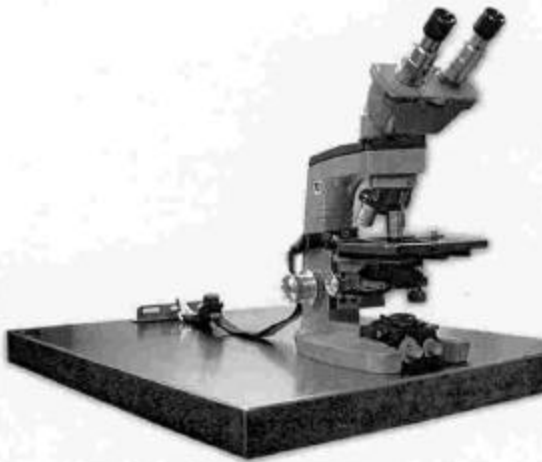
www.worksafetech.com

Tek/Lab™ Lasso

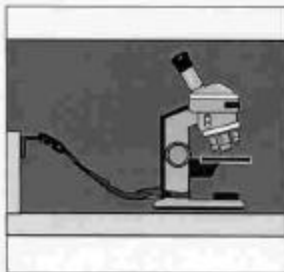
**TSP 1124BSS, TSP 1148BSS
TSP 1124PSS, TSP 1148PSS**

PRODUCT FEATURES

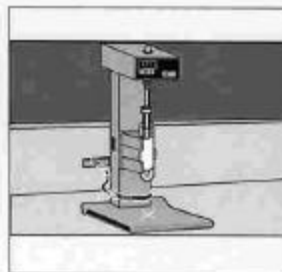
- *Secures tall and slender lab equipment in Pharmaceutical, Biotech, and Clean Room Environments*
- *Quick and easy lasso detachment for adhesive-free attachment to item*
- *Wraps around base or neck of the item and connects to a LabTrac™ plate*
- *Bio-coated TekStrap™ for bacterial and chemical resistance*
- *Strapping available in black or putty*



Wraps Around Item's Neck



Quick & Easy Mobility



Ideal for Tall
& Slender Items



Stainless Steel Snap Hook
and LabTrac Plate

The Lasso Strap wraps around the item's neck or base connecting it to a LabTrac Plate on the backsplash or countertop of the work bench. This fastening system is ideal for Pharmaceutical, Biotech, and Clean Room environments because of its cleanliness and adaptability.

TekStraps are made of a special non-corrosive and non-porous coated material that does not absorb liquids and prevents the growth of fungus and bacteria.

The Stainless Steel LabTrac Plate can be adhered to or screwed into the countertop or wall behind the item to be secured. The snap hook allows quick and easy mobility and exchange of items to other plates making it extremely flexible and efficient. There are no adhesives to remove on the item if it needs to be serviced or relocated.

SPECIFICATIONS

Lasso: 1" x 22" Adjustable length: TSP 1124BSS
TSP 1124PSS

1" x 48" Adjustable length: TSP 1148BSS
TSP 1148PSS

Colors: B = Black P = Putty

Hook: Stainless steel snap hook

LabTrac Plate: 14 Gauge stainless steel with holes
1.25" x 6" x 1" high
w/ 3M®VHB™ adhesive backing

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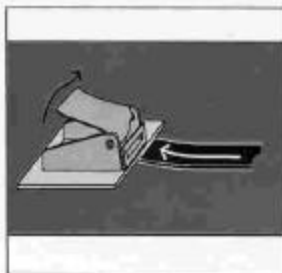
Tek/Lab™ "Swivel Cam" Fastening Kit

TSP 2124BCSS, TSP 2142BCSS

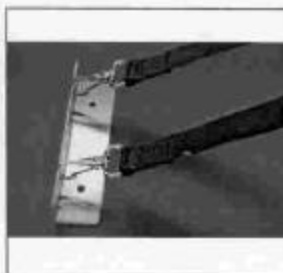
TSP 2124PCSS, TSP 2142PCSS

PRODUCT FEATURES

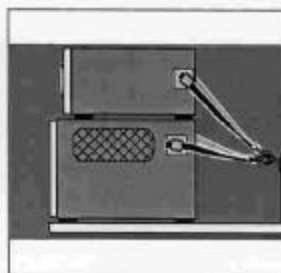
- Secures countertop lab instruments in Pharmaceutical, Biotech, and Clean Room environments
- Keeps the counter area around the equipment clear allowing for easy cleanup of spills.
- Quick and easy strap detachment for servicing and relocation
- Bio-Coated TekStraps™ are non-corrosive, easy to clean, and will not host bacteria or fungus
- Strapping available in black and putty



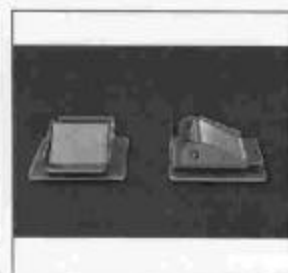
TekStrap™ slides easily into cam buckle



Stainless Steel Snap Hooks and LabTrac Plate



Stacking Method



Adhesive Swivel "T" Clip

This Tek/Lab™ "Standard" Fastening Strap Kit is a unique product designed to secure medium to heavy countertop lab equipment such as incubators, centrifuges, analyzers, mixers, etc.

This fastening system is ideal for Pharmaceutical, Biotech, and Clean Room environments because of its' cleanliness and adaptability.

TekStraps are made of a special non-corrosive and non-porous coated material that does not absorb liquids and prevents the growth of fungus and bacteria.

The stainless steel swivel cam buckles and snap hooks allow quick and easy mobility and exchange of items to other plates making it extremely flexible and efficient.

SPECIFICATIONS

Strap: 1" x 24" Adjustable length TekStrap™: TSP 2124BCSS
TSP 2124PCSS

1" x 42" Adjustable length TekStrap™: TSP 2142BCSS
TSP 2142PCSS

Colors: B = Black P = Putty

Hook: Stainless steel snap hooks

Buckle: 2" x 2" Stainless steel swivel cam buckle
w/3M®VHB™ adhesive backing

Trac Plate™: 14 Gauge Stainless Steel
1.25" x 6" x 1" high
w/3M®VHB™ adhesive backing

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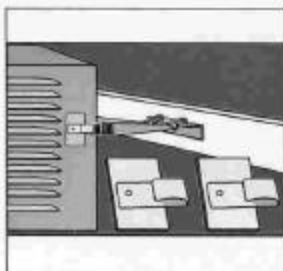
www.worksafetech.com

Tek/Lab™ "Standard" Fastening Strap Kit

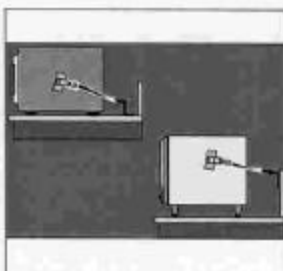
**TSP 2124BSS, TSP 2142BSS
TSP 2124PSS, TSP 2142PSS**

PRODUCT FEATURES

- Secures countertop lab instruments in Pharmaceutical, Biotech, and Clean Room environments
- Keeps the counter area around the equipment clear allowing for easy cleanup of spills.
- Quick and easy strap detachment for servicing and relocation
- Bio-Coated TekStraps™ are non-corrosive, easy to clean, and will not host bacteria or fungus
- Strapping available in black and putty



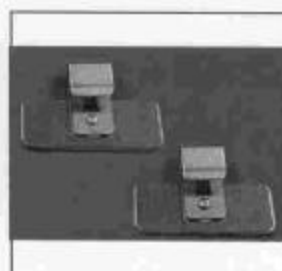
Quick and easy strap detachment



Allows more than one strapping method



Stainless Steel Snap Hook and LabTrac Plate



Adhesive Swivel "T" Clip

This Tek/Lab™ "Standard" Fastening Strap Kit is a unique product designed to secure medium to heavy countertop lab equipment such as incubators, centrifuges, analyzers, mixers, etc. This fastening system is ideal for Pharmaceutical, Biotech, and Clean Room environments because of its cleanliness and adaptability.

TekStraps are made of a special non-corrosive and non-porous coated material that does not absorb liquids and prevents the growth of fungus and bacteria. The Stainless Steel LabTrac Plate can be adhered to or screwed into the countertop or wall behind the item to be secured.

The release buckles and snap hooks allow quick and easy mobility and exchange of items to other plates making it extremely flexible and efficient.

SPECIFICATIONS

Strap:	1" x 24" Adjustable length TekStrap™: TSP 2124BSS TSP 2124PSS
	1" x 42" Adjustable length TekStrap™: TSP 2142BSS TSP 2142PSS
Colors:	B = Black P = Putty
Buckle:	Side-release (squeeze-action) Made of molded acetal resin
Clip:	1" x 3" Stainless steel swivel clip w/3M®VHB™ adhesive backing
Hook:	Stainless steel snap hooks
Trac Plate™:	14 Gauge stainless steel with holes 1.25" x 6" x 1" high, 3M®VHB™ adhesive backing

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Semi-Rigid "3" Piece "L" - Bracket System

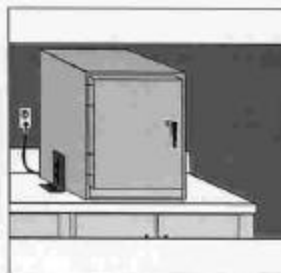
LB 2236SS, LB 4236SS

PRODUCT FEATURES

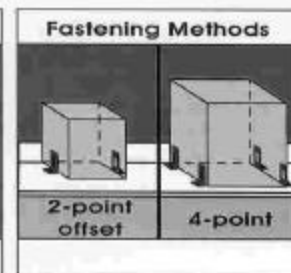
- *Stainless steel brackets secure countertop lab instruments in Pharmaceutical, Biotech, and Clean Room environments*
- *Designed to secure instruments to the countertop in a "4-point" or "2-point" offset manner*
- *Easily installed and disconnected for service or repair*
- *No drilling necessary, adhesive plates simply attach to sides of item and counter*



Heavy Duty Stainless Steel "3" Piece "L" Bracket System



Easy to disconnect for equipment relocation



This heavy duty stainless steel "3" piece "L" bracket system was designed specifically for laboratory environments. They are easy to clean, corrosion proof and can be quickly removed and replaced when servicing requires relocation of the fastened item.

These brackets are ideal for securing countertop equipment that is in a semi-permanent location such as centrifuges, small refrigerators, incubators, small furnaces, and similar equipment.

This system is easily installed and can be quickly disconnected for service or repair by simply undoing the wing nuts on the mounting plates.

SPECIFICATIONS

Plates: 2" x 3" Stainless steel
w/3M[®]VHB[™] adhesive backing

Brackets: 3" x 6" 16 Gauge stainless steel

"2-point" fastening kit: LB 2236SS

"4-point" fastening kit: LB 4236SS



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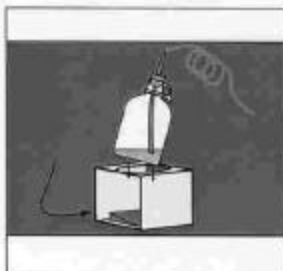
LabTrac™ Gallon Bottle Holders

LTBH 785G

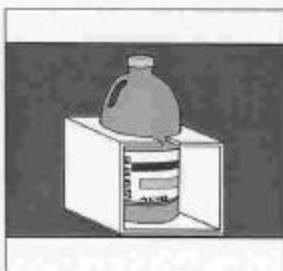


PRODUCT FEATURES

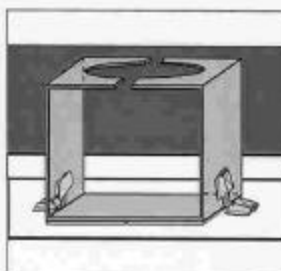
- Designed to contain gallon bottles of hazardous chemicals commonly found on lab workbench counters
- Keeps bottle captive on all sides yet leaves two sides open for viewing contents label
- Rubber friction bottom prevents bottle from sliding off the countertop
- Easy to clean stainless steel that will not corrode
- For bottles 5" to 7" in diameter



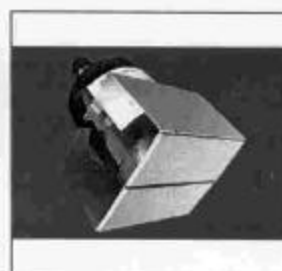
Wedges can be placed inside to tip bottle



Labels on bottles are easy to read



SeisMaLoks™ can be added for extra fastening



Non-Slip Rubber Friction Bottom

Primary concerns during an earthquake are the safety of your equipment and the safety of your employees. When securing multi-million dollar laboratory equipment, one may overlook low-tech hazards such as chemical storage bottles.

Lab Trac™ Gallon Bottle Holders keeps dangerous chemicals such as acids or other hazardous materials secured in place on the countertop. Our special design keeps bottles upright, with two sides open, allowing for the easy reading of bottle contents to avoid potentially catastrophic lab accidents.

Protecting your equipment may be priority number one, but don't forget to protect yourself.

SPECIFICATIONS

Bottle Holder: 20 Gauge stainless steel
7" x 8" x 5" high w/ 6.5" diameter cut
Rubber friction bottom

Garage & Storage Areas



Fire Extinguisher Strap Kit

Secures extinguisher to wall preventing it from jumping off mounting bracket and getting damaged. Quick-release Velcro® fastener with pull tab allows access to unit when needed. Straps fit all standard extinguishers up to 7" in diameter.

Available colors: yellow.

Kit Contains: (1) adjustable length Velcro® strap, extra mounting bracket, toggles, lag screws, and instructions.

FXS 1126Y - Yellow

\$9.95

Storage Rack Straps

These heavy-duty straps are easily screwed or bolted to posts of standard storage racks. They feature a quick-release buckle on one side for easy shelf access, and adjust to widths of up to 48".

(Tip: Consider putting small items in tubs or other containers so the rack straps will keep them secured properly).

Available colors: black.

Kit contains: (1) 1" x 48" adjustable / detachable strap, tek screws, bolts, and instructions.

RST 1148B - Black \$8.95





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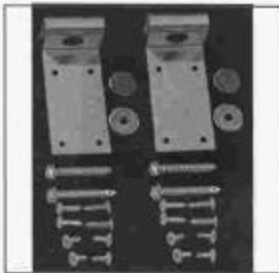
SeismaFlex™ Brackets

SF 224S, SF 226S, SF 226SA

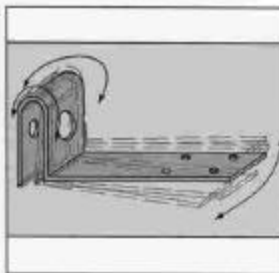


PRODUCT FEATURES

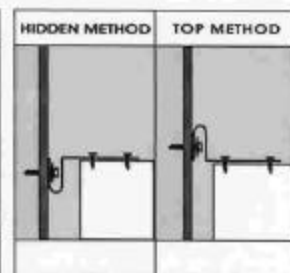
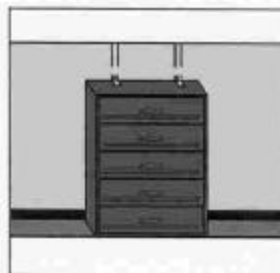
- Helps compensate for poorly constructed office and partition walls
- Brackets flex to absorb energy, reducing stress at fastening points
- Standard (2) bracket kit is for top fastening of items located directly against a wall
- Shape of bracket allows item to sit away from wall to accommodate wall molding, electrical, etc.
- Also available with 3M® VHB™ adhesive tape (for fastening to metal furniture without drilling holes)



SF 224S



Brackets handle movement in any direction without prying or pulling on the mounting hardware.



Mounting methods side view.

These stainless steel brackets are designed with a "U" bend that springs and flexes with resistance to absorb displaced seismic energy, reducing stress at the fastening connections. A rigid "L" bracket will immediately transfer the force to the connecting hardware, often snapping the heads off the screws or prying them out. Webbing straps and chains work to deflect energy but do not provide any resistance.

SeismaFlex™ brackets can handle stress from any direction and have a better designed hole pattern which allows the bracket to fasten to a wall stud with a single large lag. The furniture side attaches with multiple screws or adhesive.

This semi-rigid form of seismic anchoring is the most effective form of earthquake fastening for extra large and heavy furniture such as armoires, entertainment centers, file cabinets, bookcases, etc.

SPECIFICATIONS

Dimensions:	All brackets have a 1.5" raised "U" bend SF224S 2" x 4" for items 1/2" from wall SF226S 2" x 6" for items 4" from wall SF226SA 2" x 6" for items 4" from wall <i>*SF226SA has 3M® VHB™ adhesive tape</i>
Materials:	Made from 16 gauge stainless steel with a bright finish
Kit includes:	(2) brackets, pinhead tek screws, pinhead wood screws, lag screws for wood studs, tek screws for metal studs, cover-up caps.

**Hilti® Toggler™ are available for attachment to drywall.*

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Steel Uni-Brackets™

This broad "L" style bracket is ideal for securing racks, storage cabinets, workbenches, and to a wall stud, or anchored to a concrete floor. The broad shape makes them superior to store-bought "L" brackets. Complete kits are available for wall mount or with concrete anchors for floor mount. Brackets come in stainless steel finish.

Kit contains: (2) steel uni brackets, tek and lag screws, (anchors on floor model), and installation instructions.

UBW 223SS - Stainless / Wall	\$16.95
UBF 223SS - Stainless / Floor	\$22.95



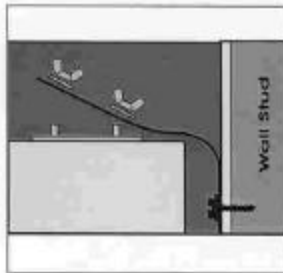
www.worksafetech.com

Large Appliance TekStrap™ Kit

TSA 2218B, TSA 2218P

PRODUCT FEATURES

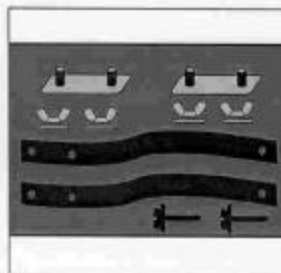
- Ideal for wall fastening of refrigerators, large items on wheels, etc.
- Stainless steel stud plates attach with 3M® VHB™ adhesive to sides of unit
- TekStraps™ are pre-punched for attachment over adhesive stud plates
- Easy detachment for accessing behind items for cleaning, servicing, etc.
- Ideal for labs or clean room environments
- Available in black and putty



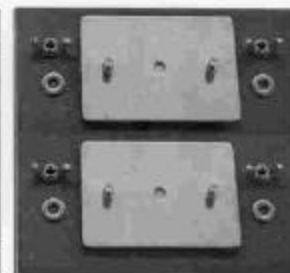
No drilling into item for strap installation



Discreet and effective strapping method



Kit is ready for installation



Stainless steel hardware

This kit is ideal for securing large appliances or furnishings in laboratory or clean room environments because of its cleanliness and easy installation/removal. TekStraps are made of a special non-corrosive and non-porous coated material that does not absorb liquids and prevents the growth of fungus and bacteria.

The stainless steel mounting stud plates adhere to the item with 3M®VHB™ adhesive. The stainless steel wing nuts make it easy to attach and detach for cleaning or servicing.

SPECIFICATIONS

Straps: 2" x 18" TekStraps™ (poly-coated nylon)

Plates: 2" x 3" #304 Stainless steel mounting plates w/3M®VHB™ Adhesive Backing

Colors: B = Black P = Putty

Kit includes nuts, tek screws, lag screws and alcohol cleaning pads

Two straps can hold items up to 1000 lbs. in weight

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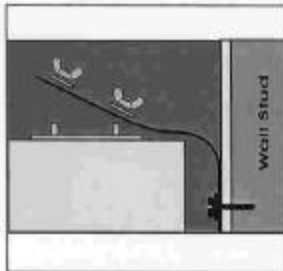
Furniture/Appliance TekStrap™ Kit

TSA 2118B, TSA 2118P



PRODUCT FEATURES

- Ideal for wall fastening of bookcases, small appliances, etc.
- Stainless steel stud plates attach with 3M® VHB™ adhesive to unit
- TekStraps™ are pre-punched for attachment over adhesive stud plates
- Quick and easy securing for access to items for cleaning, servicing, etc.
- Ideal for labs or clean room environments
- Available in black and putty



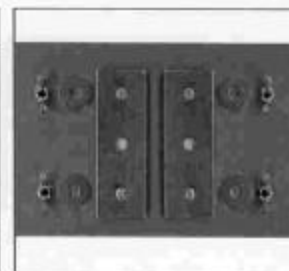
No drilling into item for strap installation



Discreet and effective strapping method



Kit is ready for installation



Stainless steel hardware

This kit is ideal for securing small appliances or furnishings in laboratory or clean room environments because of its cleanliness and easy installation/removal. TekStraps are made of a special non-corrosive and non-porous coated material that does not absorb liquids and prevents the growth of fungus and bacteria.

The small stainless steel mounting stud plates adhere to the item with 3M®VHB™ adhesive. The stainless steel wing nuts make it easy to attach and detach for cleaning or servicing.

SPECIFICATIONS

Straps: 1" x 18" TekStraps™ (poly-coated nylon)

Plates: 1" x 3" Stainless steel mounting plates w/3M®VHB™ adhesive backing

Colors: B = Black P = Putty

Kit includes nuts, tek screws, lag screws and alcohol cleaning pads

Two straps can hold items up to 500 lbs. in weight

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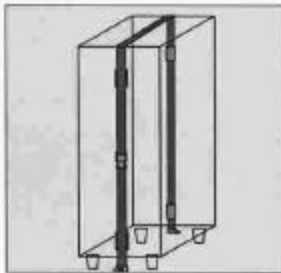
Ratchet Overstrap

NTS 2149B, NTS 2149S, NTS 2149W
NTS 2249B, NTS 2249S, NTS 2249W
NTS 2409B, NTS 2409S, NTS 2409W

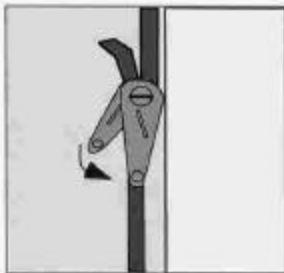


PRODUCT FEATURES

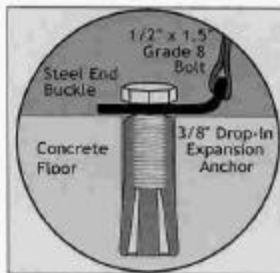
- Ideal for large refrigerators, ice machines, vending machines, etc.
- Secures unit to floor without drilling into body
- Adjustable nylon straps
- Heavy-duty steel ratchet tightly cinches strap to unit
- Available in black, silver or white



Ratchet Strap with optional strap guides.



Quick & Easy Fastening.



Floor Anchor.



Steel Ratchet.

Fastening of thermally insulated items such as refrigerators, vending machines, and even flammable liquids storage cabinets should be done without screwing into the body of the item. These types of items may contain freon tubes or exposed wiring which could be dangerous. The thermal insulation barrier will also be compromised causing improper performance of the appliance.

Our Ratchet Straps do not require screwing into the unit; the straps use cinching pressure to secure the item. There is no need to constantly re-tighten the item since the straps are made of high-quality nylon seat belt webbing that does not stretch. A specially designed end bracket pulls at a 45 degree angle away from the anchor to ensure maximum effectiveness when anchoring to a concrete floor.

SPECIFICATIONS

Strap:	non-stretch nylon webbing NTS 2149 = 2" x 14 ft. NTS 2249 = 2" x 24 ft. NTS 2409 = 2" x 40 ft. Also available in 1" width
Ratchet:	Steel
Brackets:	Steel 45° angle, 1/2" center hole
Colors:	B = Black S = Silver W = White

Kits include bolts and Hilti® Drop-in concrete anchors

Strap guides sold separately - NTSG 224 (black or silver 2 pcs.)
 NTSG 424 (black or silver 4 pcs.)

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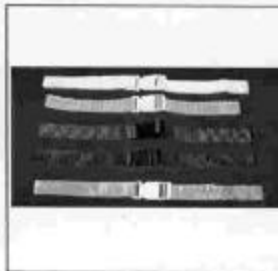
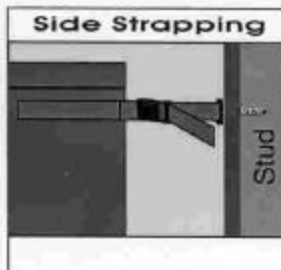
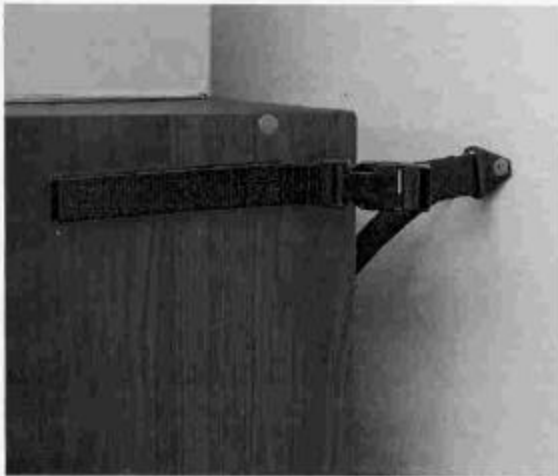
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Furniture/Appliance Strap Kit w/Velcro®

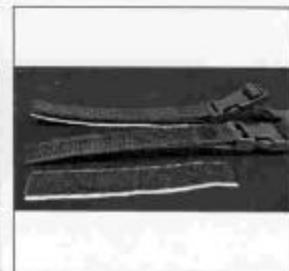
FSV 2112B, FSV 2112MB, FSV 2112S,
FSV 2112T, FSV 2112W

PRODUCT FEATURES

- Ideal for small furnishings / appliances
- Adjustable nylon straps w/side-release buckles
- Quake strength Velcro® fasteners
- Can secure items placed 1" to 12" from wall
- Allows easy securing and quick access to items for cleaning, servicing, etc.
- Available in black, medium brown, silver, tan, or white
- Kits include all hardware



Available in 5 colors



Secure fastening with Quake Strength Velcro®

These multi-purpose straps are great for prefabricated / self-assembled furniture up to 250 lbs. They can also be used for countertop items, microwave ovens, small TVs, aquariums, and many other items.

Installation is simple since there is no need to drill into item to be secured; just peel and stick the Velcro® end to the item and pull the strap end tight. Each strap has 6 square inches of quake-strength Velcro® brand hook & loop/peel & stick tape.

The buckle can be adjusted to fasten items that sit 3" to 6" from the wall. The other end of the strap features a steel bracket that mounts to a wall stud with lag screws.

SPECIFICATIONS

Straps:	1" x 12" Commercial grade nylon Quake-strength Velcro® hook & loop/peel & stick Each pair holds items up to 250 lbs.
Buckles:	Side-release (squeeze-action) Made of molded Acetal Resin
End Bracket:	Painted steel
Colors:	B = Black MB = Medium Brown S = Silver T = Tan W = White

Kit comes with lag screws and alcohol cleaning pads

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instructions.

NTS 648B - Black	\$32.95
NTS 648S - Silver	\$32.95
NTS 648W - White (w/chrome buckle)	\$32.95

Water Cooler Strap Kit

Our water cooler kit comes complete with all the parts necessary to secure the cooler and the bottle to the wall. The bottle strap features a quick-release buckle that allows easy removal when changing bottles. Bottled water is a very valuable commodity after an earthquake. Additionally, spilled water can cause damage or make walkways unsafe. Available colors: silver, white.



Kit contains: (1) water bottle strap with quick-release buckle, (1) water cooler strap with Velcro®, screws, and installation instructions.

WC 2165S - Silver	\$29.95
WC 2165W - White	\$29.95

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Kitchen & Laundry Room



Cabinet Latches

This style latch requires a front knob on the face of the cabinet. Pulling the knob disengages the locking mechanism for access inside the cabinet.

Use the knob provided or add your own decorative knob.

CL 01 Kit Contains: (1) Latch mechanism, (1) latch catch, screws, and installation instructions.

CLK 01 Kit Contains: (1) Latch with chrome knob, (1) latch catch, screws, and installation instructions.

CL 01 - without knob	\$1.95
CLK 01 - with chrome knob	\$2.95

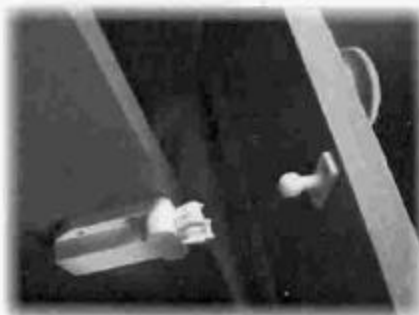
Push-Pull Cabinet Latches

This style latch does **not** require a front knob and can be installed under shelf to preserve space. Simply push the cabinet to open and close. This latch **may** open during violent shaking from an earthquake. This latch system is considered an alternative to drilling through the cabinet door to install a knob as required on the standard latch above.

Available colors: brown, white.

Kit Includes: (1) Push-Pull Latch, screws, and installation instructions.

CL 37MB - Brown	\$4.95
CL 37W - White	\$4.95



TSH 2118B - Black	\$15.95
TSH 2118MB - Brown	\$15.95
TSH 2118P - Putty	\$15.95
TSH 2118T - Tan	\$15.95

GripStrip™ Shelf Restraint

A truly unique way to keep books and other items from sliding off shelves during seismic activity. Non-adhesive strip rests under books at front edge of shelf. More attractive than unsightly bungee cords, shelf lips, straps, or book bars.

The 12 ft. roll includes enough for (4) 36" shelves.

Available only in gray color.

Kit contains: (1) roll of GripStrip and instructions.



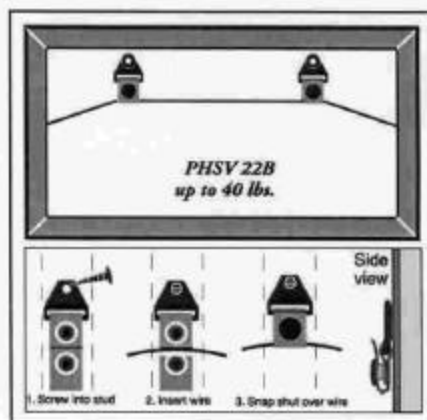
GS 4512G - Gray 4.5" x 12"	\$2.44
GS 4512FTG - Gray 4.5" x 12FT	\$28.95
GS 4534G - Gray 4.5" x 34"	\$5.91
GS 4585FTG - Gray 4.5" x 85FT	\$141.95

Picture / Mirror SnapStraps™

These SnapStraps keep the hanging wire captive and secured to the wall with flexible nylon webbing and heavy duty snaps. They screw to the wall via wall stud or Toggler™ and will keep up to a 40 lb. frame (per pair) attached to the wall during even the most violent earthquake. Snap straps can be used to hang the picture/mirror frames, or can be added next to the existing hook to act as a safety catch in the event of hook failure. One kit will secure 2 small frames up to 20 lbs. or 1 large frame up to 40 lbs.

Kit contains: (2) Picture Hanger Straps - Black w/snaps

PHS 22B	\$6.95
PHSV 22B - w/Velcro®	\$7.70



[Top of Page](#)

Picture Perfect Hangers™

Unique way to hang pictures and mirrors (up to 40 lbs.), while protecting from seismic motion. Easy to install into drywall or nail into existing stud. Dynamic leverage design actually holds stronger than using regular nails.

Available in brass color only.

Kit contains: Picture Perfect Hangers, Picture Perfect Mounting Brackets, and instructions.



PPH 02 - 2-pack	\$3.95
PPH 05 - 5-pack	\$5.95
PPH 25 - 25-pack	\$19.95



Quake Secure™ Figurine Putty

High-tack and dough-like consistency is ideal for securing glassware and figurines to shelves. Putty is non-drying, non-toxic and sticks to all types of plastic, glass or finished wood.

Pack contains: (1) 2.8 oz flat piece of putty, user tips, and instructions.

QSP 288

\$4.95